



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

PW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,764	10/22/2001	Kohji Kanamori	N32565600	5751
7590 12/18/2003				
Darryl G. Walker WALKER & SAKO, LLP Suite 235 300 South First Street San Jose, CA 95113		EXAMINER FOURSON III, GEORGE R		
		ART UNIT PAPER NUMBER 2823		

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/032,764	KANAMORI, KOHJI	
	Examiner	Art Unit	
	George Fourson	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003 and 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/28/03 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 8,9,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon.

The rejection is maintained as stated in the paper mailed 4/24/03 and for the reasons stated in the paper mailed 7/25/03 and as restated below.

Bois discloses formation of LOCOS mask 4, exemplifying silicon nitride, local oxidation of the substrate to produce a LOCOS film 8, etching of 8 using mask 4 to form trench 10, filling of trench 10 with dielectric 14 and planarization of dielectric 14 to the level of LOCOS film 8. The reference does not disclose use of a conductive layer in the LOCOS mask or the use of sidewalls on mask 4 to etch trench 10.

Japan '268 discloses LOCOS using a nitride 4/conductive film 3/oxide film 2. It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Japan '268 to enable formation of the LOCOS mask of Bois.

Kwon discloses formation of trench 8 through LOCOS film 5A by formation of sidewalls 6A on LOCOS mask nitride 4/polysilicon 3/oxide 2 (fig.1A-1C). It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Kwon to enable formation of trench 10 of Bois.

Choice of particular thickness of the LOCOS film would have been within the scope of one of ordinary skill in the art as a matter of routine optimization.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon as applied to claims 8,9,12 and 13 above, and further in view of Lai.

The rejection is maintained as stated in the paper mailed 4/24/03 and for the reasons stated in the paper mailed 7/25/03 and as restated below.

The combination does not include forming a dielectric on the conductive layer or another conductor layer on the dielectric layer. Lai discloses forming an EEPROM which includes forming an insulator on a polysilicon layer and a further polysilicon layer. It would have been within the scope of one of ordinary skill in the art to combine the teachings of the combination and those of Lai to enable EEPROM formation.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon as applied to claims 8,9,12 and 13 above, and further in view of either one of Rho et al or Suh et al, newly cited.

The rejection is maintained as stated in the paper mailed 4/24/03 and for the reasons stated in the paper mailed 7/25/03 and as restated below.

The combination does not include forming the sidewalls using nitride. The examiner takes official notice that formation of nitride spacers as part of a hard mask was known prior to applicant's invention. It would have been within the scope of one of ordinary skill in the art to combine the known process with that of the combination to enable formation of the mask used to etch the LOCOS film.

Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bois.

The rejection is maintained as stated in the paper mailed 4/24/03 and for the reasons stated in the paper mailed 7/25/03.

Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bois as applied to claims 14 and 15 above, and further in view of Lai.

The rejection is maintained as stated in the paper mailed 4/24/03 and for the reasons stated in the paper mailed 7/25/03 and as restated below.

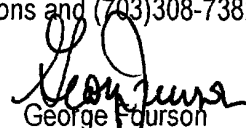
Bois discloses removal of the LOCOS mask and formation of MOS IC devices including transistors (col.1, lines 7-15). The reference does not disclose formation of a gate oxide and a gate on the substrate between the LOCOS films and overlapping a portion of the films.

Lai teaches provision of an EEPROM between and overlapping LOCOS regions (fig.5). It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Lai to enable EEPROM formation as the device formation step of Bois.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. See MPEP 203.08.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner George Fourson whose telephone number is (703) 308-2544. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax number for this group is (703)308-7722 (or extensions 7724, 3431 or 3432) for regular communications and (703)308-7382 for after final communications.


George Fourson
Primary Examiner
Art Unit 2823

GFourson
December 16, 2003